Title (en)

METHOD FOR PRODUCING BONDED OBJECT AND SEMICONDUCTOR DEVICE AND COPPER BONDING PASTE

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES VERBUNDENEN OBJEKTS UND HALBLEITERBAUELEMENT UND KUPFERVERBINDUNGSPASTE

Title (fr)

PROCÉDÉ DE FABRICATION D'OBJET COLLÉ ET DISPOSITIF SEMI-CONDUCTEUR ET PÂTE DE COLLAGE DE CUIVRE

Publication

EP 3889317 A1 20211006 (EN)

Application

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Priority

JP 2018044068 W 20181129

Abstract (en)

An embodiment of the present invention provides a method for producing a bonded object. The method comprises a step for preparing a laminate in which a first member, a copper bonding paste, and a second member are laminated in order and a step for sintering the copper bonding paste under a pressure of 0.1-1 MPa. The copper bonding paste contains metal particles and a dispersion medium, wherein the content of metal particles is at 50 mass% or more with respect to the total mass of the copper bonding paste, and the metal particles contain 95 mass% or more of submicro copper particles with respect to the total mass of the metal particles.

IPC 8 full level

C23C 20/04 (2006.01); **B22F 1/10** (2022.01); **H01L 21/52** (2006.01)

CPC (source: EP KR US)

B22F 1/054 (2022.01 - EP US); **B22F 1/056** (2022.01 - EP US); **B22F 1/10** (2022.01 - EP KR US); **B22F 7/00** (2013.01 - EP US); **B22F 7/064** (2013.01 - EP US); **B23K 20/026** (2013.01 - EP); **B23K 20/16** (2013.01 - EP); **B23K 20/233** (2013.01 - EP); **B23K 35/0244** (2013.01 - EP); **B23K 35/025** (2013.01 - EP); **B23K 35/302** (2013.01 - EP); **C22C 1/0425** (2013.01 - EP); **C23C 20/04** (2013.01 - EP); **H01L 23/4924** (2013.01 - KR); **H01L 24/27** (2013.01 - EP); **H01L 24/29** (2013.01 - EP US); **H01L 24/80** (2013.01 - KR); **H01L 24/83** (2013.01 - EP US); **H01L 24/84** (2013.01 - EP); B22F 2999/00 (2013.01 - EP); B23K 2101/40 (2018.08 - EP); B23K 2101/42 (2018.08 - EP); B23K 2103/08 (2018.08 - EP); H01L 23/3121 (2013.01 - EP); H01L 24/32 (2013.01 - EP); H01L 24/40 (2013.01 - EP); H01L 24/73 (2013.01 - EP); H01L 2224/2741 (2013.01 - EP); H01L 2224/27442 (2013.01 - EP); H01L 2224/27848 (2013.01 - EP); H01L 2224/29294 (2013.01 - EP US); H01L 2224/29347 (2013.01 - EP KR US); H01L 2224/32225 (2013.01 - EP); H01L 2224/40225 (2013.01 - EP KR); H01L 2224/40499 (2013.01 - EP); H01L 2224/45099 (2013.01 - EP); H01L 2224/48091 (2013.01 - EP); H01L 2224/48227 (2013.01 - EP); H01L 2224/73221 (2013.01 - EP); H01L 2224/73263 (2013.01 - EP); H01L 2224/73265 (2013.01 - EP); H01L 2224/80801 (2013.01 - KR); H01L 2224/83411 (2013.01 - EP); H01L 2224/83416 (2013.01 - EP); H01L 2224/83418 (2013.01 - EP); H01L 2224/83424 (2013.01 - EP); H01L 2224/83438 (2013.01 - EP); H01L 2224/83439 (2013.01 - EP); H01L 2224/83444 (2013.01 - EP); H01L 2224/83447 (2013.01 - EP); H01L 2224/83449 (2013.01 - EP); H01L 2224/83455 (2013.01 - EP); H01L 2224/83457 (2013.01 - EP); H01L 2224/8346 (2013.01 - EP); H01L 2224/83464 (2013.01 - EP); H01L 2224/83466 (2013.01 - EP); H01L 2224/83469 (2013.01 - EP); H01L 2224/83471 (2013.01 - EP); H01L 2224/8348 (2013.01 - EP); H01L 2224/8384 (2013.01 - EP US); H01L 2224/8484 (2013.01 - EP); H01L 2224/92247 (2013.01 - EP); H01L 2924/00014 (2013.01 - EP); H01L 2924/10253 (2013.01 - EP); H01L 2924/12032 (2013.01 - EP); H01L 2924/13055 (2013.01 - EP); H01L 2924/13091 (2013.01 - EP); H01L 2924/181 (2013.01 - EP); H01L 2924/3512 (2013.01 - EP)

C-Set (source: EP US)

EP

1. H01L 2224/48091 + H01L 2924/00014
2. H01L 2924/181 + H01L 2924/00012
3. B22F 2999/00 + B22F 7/064 + B22F 1/10 + C22C 1/0425 + B22F 1/054
4. H01L 2224/73265 + H01L 2224/32225 + H01L 2224/48227 + H01L 2924/00012
5. H01L 2924/13091 + H01L 2924/00
6. H01L 2924/13055 + H01L 2924/00
7. H01L 2924/12032 + H01L 2924/00
8. H01L 2924/00014 + H01L 2224/45099
9. H01L 2224/83439 + H01L 2924/013 + H01L 2924/00013
10. H01L 2224/83457 + H01L 2924/013 + H01L 2924/00013
11. H01L 2224/83411 + H01L 2924/013 + H01L 2924/00013
12. H01L 2224/8348 + H01L 2924/013 + H01L 2924/00013
13. H01L 2224/83455 + H01L 2924/013 + H01L 2924/00013
14. H01L 2224/83438 + H01L 2924/01004 + H01L 2924/013 + H01L 2924/00013
15. H01L 2224/40499 + H01L 2924/01029 + H01L 2924/00014
16. H01L 2224/83418 + H01L 2924/013 + H01L 2924/00013
17. H01L 2224/83424 + H01L 2924/013 + H01L 2924/00013
18. H01L 2224/83416 + H01L 2924/013 + H01L 2924/00013
19. H01L 2224/29347 + H01L 2924/00014
20. H01L 2224/83444 + H01L 2924/013 + H01L 2924/00013
21. H01L 2224/45099 + H01L 2924/00014
22. H01L 2224/8346 + H01L 2924/013 + H01L 2924/00013
23. H01L 2224/83466 + H01L 2924/013 + H01L 2924/00013
24. H01L 2224/83471 + H01L 2924/013 + H01L 2924/00013
25. H01L 2224/83469 + H01L 2924/013 + H01L 2924/00013
26. H01L 2224/83447 + H01L 2924/013 + H01L 2924/00013
27. H01L 2224/83449 + H01L 2924/013 + H01L 2924/00013
28. H01L 2224/83464 + H01L 2924/013 + H01L 2924/00013
29. H01L 2224/73221 + H01L 2224/40225 + H01L 2224/48227 + H01L 2924/00

US

B22F 2999/00 + B22F 7/064 + B22F 1/10 + C22C 1/0425 + B22F 1/054

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 3889317 A1 20211006; **EP 3889317 A4 20211124**; CN 113166945 A 20210723; CN 113166945 B 20240102; JP 2024010136 A 20240123; JP 7468358 B2 20240416; JP WO2020110271 A1 20211021; KR 102573004 B1 20230830; KR 20210096147 A 20210804; SG 11202105564Q A 20210629; TW 202019583 A 20200601; US 11890681 B2 20240206; US 2022028824 A1 20220127; WO 2020110271 A1 20200604

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EP 18941471 A 20181129; CN 201880099778 A 20181129; JP 2018044068 W 20181129; JP 2020557492 A 20181129; JP 2023186285 A 20231031; KR 20217019175 A 20181129; SG 11202105564Q A 20181129; TW 108136712 A 20191009; US 201817296986 A 20181129